

REMARKS

Claims 41-50, 52, 53, 55-67, 69, and 70 are all of the pending claims, with claims 41 and 58 being written in independent form. By virtue of this Amendment, Applicants cancel claims 51, 54, and 68.

I. Claim Objection:

As a path of least resistance, Applicants cancel claim 54, thereby rendering the objection of this claim moot.

II. Drawings:

At numbered paragraph 2 of the Office Action, the Examiner objects to the drawings because they allegedly fail to show the features recited in claim 57. Applicants respectfully disagree, however, since Fig. 6C clearly shows three mesh grids 23, 23', 23'', inclusive of two outer mesh grids that have a curved shape.

Applicants note that Fig. 6C was submitted together with the January 1, 2002 Amendment. A courtesy copy of Fig. 6C is enclosed for the Examiner's convenience.

III. Allowable Subject Matter:

The Examiner indicates that claim 57 would be allowed if it were rewritten in independent form. Applicants do not rewrite this claim (as suggested by the Examiner) because independent claim 41 is believed to be patentable for the reasons discussed in detail below.

IV. Claim Rejections on Prior Art Grounds

The Examiner rejects claims 41, 42, 52, 53, 58, 59, 69, and 70 under 35 U.S.C. § 102(b) as being anticipated by U.S. 4,338,548 to Bono et al. ("Bono"); claims 41, 42, 47-49, 58, 59, and 64-66 under 35 U.S.C. § 102(b) as being anticipated by U.S. 5,013,963 to Ikegami et al. ("Ikegami"); claims 43-46, 54, and 60-63 under 35 U.S.C. § 103(a) as being obvious over Bono, and further in view of U.S. 5,376,792 to Schamber et al. ("Schamber"); and claims 50, 51, 56, 67, and 68 under 35 U.S.C. § 103(a) as being obvious over Bono, and further in view of U.S. 5,059,804 to Fink et al. ("Fink"). Applicants respectfully traverse these rejections in view of the following remarks.

A. Independent Claim 41:

Independent claim 41 recites (among other things) that the lens array is for "*splitting the electron beam into a plurality of sub beams.*" An exemplary, non-limiting embodiment of this feature is depicted in Fig. 5. Here, the electron beam 84, which is output from the electron gun, impinges upon the lens array 80. The lens array 80 splits the electron beam 84 into a plurality of sub beams 87. At least this feature (as claimed in claim 41), in combination with the other features defined by claim 41, is not taught or suggested by the prior art relied upon by the Examiner.

The Bono Reference:

The Examiner relies upon the Bono reference to teach each and every feature of the invention defined by claim 41. In so doing, the Examiner cites Fig. 2 of Bono, and compares the objective lens assembly 21 to the lens array of the present invention. This rejection position is not convincing for the following reasons.

As shown in Fig. 2 of Bono, the disclosed device does include an electron gun 12 that produces an electron beam. The electron beam, after passing through a condenser lens 13, a coarse deflector 14, and a termination plate 15, impinges upon the objective lens assembly 21. However, in contrast to the claimed invention, the objected lens assembly 21 does not split the electron beam into a plurality of sub beams. Bono's disclosure is straightforward in this regard. The pertinent portions indicate that the coarse deflector 14 deflects the electron beam to "*a desired one of the many micro lenslets formed by ... the objective lens assembly.*"¹ In this way, only one of the micro lenslets may be accessed by the coarse deflection of the electron beam at any given instant.² Although this expressed disclosure is directed to the apparatus depicted in Fig. 1, the apparatus depicted in Fig. 2 (which is the embodiment relied upon by the Examiner) provides the same functionality in this regard.

The Ikegami Reference:

The Examiner also relies upon the Ikegami reference to teach each and every feature of the invention defined by independent claim 41. In so doing, the Examiner relies upon Fig. 2A of Ikegami and compares the grids 2, 3, 4, 5 to the lens array of the present invention. This rejection position is not convincing for the following reasons.

As shown in Fig. 2A of Ikegami, the disclosed electron gun includes a cathode 1 followed by four grids, 2, 3, 4, 5. The first two grids 2, 3 are not comparable to the claimed lens array at least because these grids are not placed in a "*drift space.*". As indicated in the present specification, a drift space is a region in which the electrons are permitted to drift, i.e., there is no electric field sufficient to accelerate or decelerate the electrons. In contrast,

¹ Bono (4:23-30).

² Bono (4:30-34).

Ikegami indicates that voltages applied to the grids 2, 3 accelerate the thermion generated by the cathode 1.³ Thus, the grids 2, 3 of Ikegami are not pertinent to the present invention because they are not positioned as claimed.

Furthermore, the remaining two grids 4, 5 of Ikegami are not pertinent to the present invention. This is because, the grids 4, 5 do not split an electron beam into a plurality of sub beams. In fact, just the opposite is true. According to Ikegami's straightforward disclosure, the voltages applied to the grids 4, 5 generate an electric field to form a main focusing lens that is common to three electron beams.⁴ The main focusing lens causes the three electron beams to converge and focus at one point at in front of the grid 5.⁵ In this regard, assuming that all three electron beams are present at one given instant, it would appear that the grids 4, 5 cooperate to assemble the 3 electron beams into a single beam. Certainly then, the grids 4, 5 do not split an electron beam into a plurality of sub beams.

In brief, Applicants respectfully submit that independent claim 41 recites features that are practically and conceptually different that the Bono and the Ikegami references. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the raised anticipation rejections.

B. Independent Claim 58:

Independent claim 58 is somewhat similar to claim 41, however claim 58 is written in a method format. In particular, independent claim 58 defines a method that involves "*splitting the electron beam*" via one lens array placed in a drift space. Accordingly, claim 58 is believed to be patentable for reasons analogous to those noted above with respect to claim 41.

³ Ikegami (3:35-38).

⁴ Ikegami (3:38-45).

⁵ *Id.*

For these reasons, Applicants respectfully submit claims 41 and 58 are patentable, at that claims 42-50, 52, 53, 55-67, 69, and 70 are patentable at least by virtues of their dependencies.

CONCLUSION

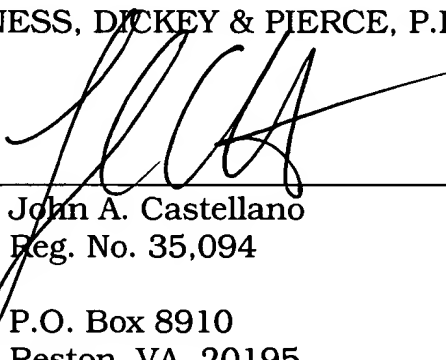
In the event that any matters remain at issue in the application, the Examiner is invited to contact the undersigned at (703) 668-8000 in the Northern Virginia area, for the purpose of a telephonic interview.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY & PIERCE, P.L.C.

By



John A. Castellano
Reg. No. 35,094

P.O. Box 8910
Reston, VA 20195
(703) 668-8000

JAC/HRH:ybm